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Riverside Trail

Ausable River Ecology

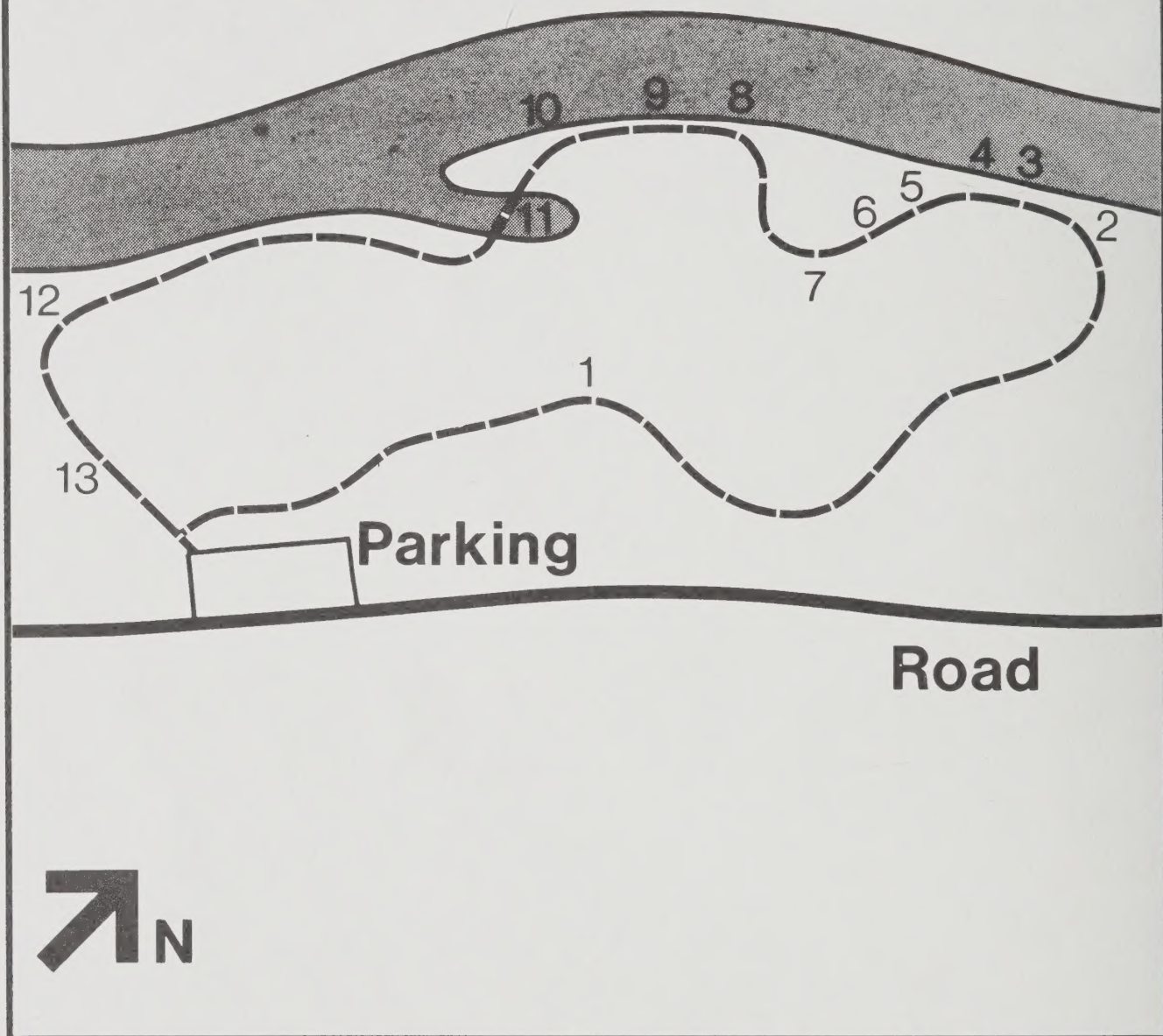


Riverside Trail

Text by Don Tyerman

Illustrations by Peter Burke

Old Ausable River Channel



The Riverside Trail is a 1.0 km handicapped accessible loop trail. Passing from dry upland oak/pine forests onto the Ausable River floodplain this trail is home to a diverse variety of plants and animals. Benches and viewing platforms make contemplative nature observation an enjoyable activity on this trail.

The numbered sections in this guide correspond to numbered posts along the trail. Each discusses a unique

aspect of the Ausable River's rich natural community. Plan at least forty minutes to quietly walk this trail. Along the way you may find,

*"...tongues in trees, books in running brooks
Sermons in stone and good in everything..."*

William Shakespeare

Post 1 The Ghost River

Take a seat. In front of you flow the inky waters of a ghost river. Bass and pike cruise its depths. Ducks quack, splashing noisily on the surface while a Great Blue Heron patiently stalks the shallows in search of minnows. But wait! There's no water flowing past this bench. Squirrels and chipmunks scurry through the leaf litter as Blue Jays cry overhead. The only thing that looks even remotely like a river is the swamp like depression just beyond this post.

There you have it folks - Pinery's Ausable River! Expecting more water? Don't worry, you're looking at a "ghost channel". Like a snake's trail slithering down a sandy path, a river's course continually changes. Each spring, the Ausable establishes a new route through its valley. Silt is deposited behind every point while, simultaneously, the opposite banks are eroded. The resulting U-shaped bends, are called "oxbows".

You're looking at an abandoned oxbow. River currents have breached the point of land once separating this oxbow's arms. Isolated from river currents, the oxbow in front of you has filled with debris and become a ghost channel.

Meandering through its valley, the Ausable River travels 250 kilometres (km) to cover the 80 km distance from its source to mouth! Ghost channels and oxbows mark the boundaries of its floodplain. In high water years the entire floodplain may be inundated with water. Although flood water makes life difficult for people living on the floodplain, it also carries a commodity important to all floodplain residents - silt.

Post 2 There's Nothing like a Good Flood

A river's influence extends well beyond the water's surface. For example, you are now surrounded by floodplain forest. Notice that the upland forest's smaller trees have been replaced by floodplain giants. Although found throughout the Pinery, many tree species like the Red Oak at this station attain their maximum size along the Ausable floodplain. Other species like Basswood, Sycamore, and Ash are not found elsewhere in the park. How does the river affect both the size and diversity of tree species living along its banks?

Flooding created Pinery's most fertile soils. Silt carried by spring meltwater is rich in the nutrients needed for plant growth. Flooding acts like an annual fertilizer treatment. A diverse assembly of plants compete for this bounty of "plant food". Rooted in the rich floodplain soil, Pinery's largest trees stretch skyward. An understory of ferns, shrubs and wildflowers crowd into any beams of light that penetrate the canopy. The river feeds the forest vital nutrients - the forest returns this favour.



Post 3 The Gift of Life



Tree leaves help power the Ausable River's rich ecosystem.

Look around. You're now suspended between two worlds. Above your head is the familiar world of birds and trees. Beneath your feet lies the mysterious, silent world of water. It's difficult to see how these worlds rely on each other. We know the river feeds and waters the forest, but what does the forest give to the river?

Every autumn, the Ausable is showered with tens of thousands of leaves. To human eyes these leaves are merely a sign of changing seasons. To a river they are the gift of life.

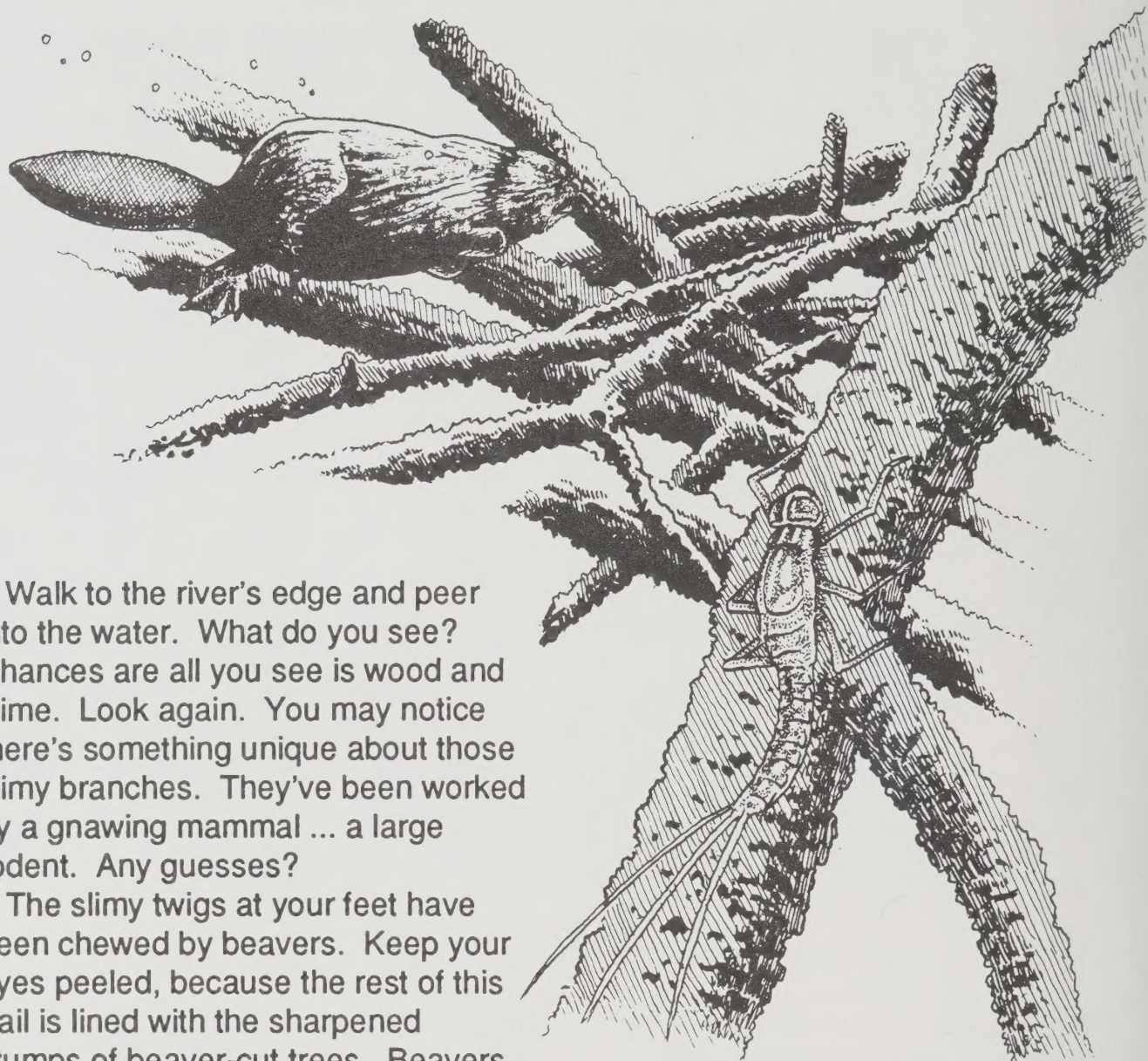
All life ultimately depends on the energy captured and stored in plant tissue. The aquatic plants you see growing from the river bottom capture only a fraction of the energy required to power the Ausable's rich ecosys-

tem. The balance is provided by trees.

Within 24 hours, a fallen leaf is already contributing to the Ausable's aquatic community. A quarter of its weight (mainly soluble nutrients) immediately leaches into the surrounding water. Within days, fungi attack. Hair-like fungal threads tenderize leaf material allowing an invisible army of bacteria to follow.

Decomposition accelerates at this stage. Insect larvae attack the leaves tearing them to pieces. These bizarre looking creatures feed on either leaf material or on the bacterial slime coating it. Despite their formidable appearance, the larvae of Mayflies, Midges, Craneflies and other aquatic insects must keep a watchful eye. They too, are a part of the food chain.

Post 4 Wood, Slime and Rodents



Walk to the river's edge and peer into the water. What do you see? Chances are all you see is wood and slime. Look again. You may notice there's something unique about those slimy branches. They've been worked by a gnawing mammal ... a large rodent. Any guesses?

The slimy twigs at your feet have been chewed by beavers. Keep your eyes peeled, because the rest of this trail is lined with the sharpened stumps of beaver-cut trees. Beavers once occupied almost every river system in North America. Hunting, trapping and habitat destruction led to the disappearance of beavers from many watersheds, including the Ausable River.

Two pair of beaver were reintroduced to Pinery Park in 1960. Since then, several beaver colonies have thrived. By dragging branches and logs into the river, Pinery's beavers have improved the Ausable's aquatic habitat.

The maze of stems, branches and logs around a beaver lodge provide abundant hiding places for small aquatic creatures. Waterlogged branches also create habitat for

"slime". Although usually considered "yucky", slime is really an incredibly rich community of bacteria, fungi and algae. Some of these microbes rot the submerged wood while others are simply looking for a solid place to grow.

The Ausable's "slime" is not unlike grass in a pasture. Snails and insect larvae instead of cows graze in this pasture. These aquatic "cows" often become a meal for sunfish and minnows. Small fish in turn are preyed upon by larger fish, kingfishers and herons. Thanks partly to beavers the Ausable's aquatic grass, its "slime", supports a thriving aquatic community.

Post 5 Damn that Dam

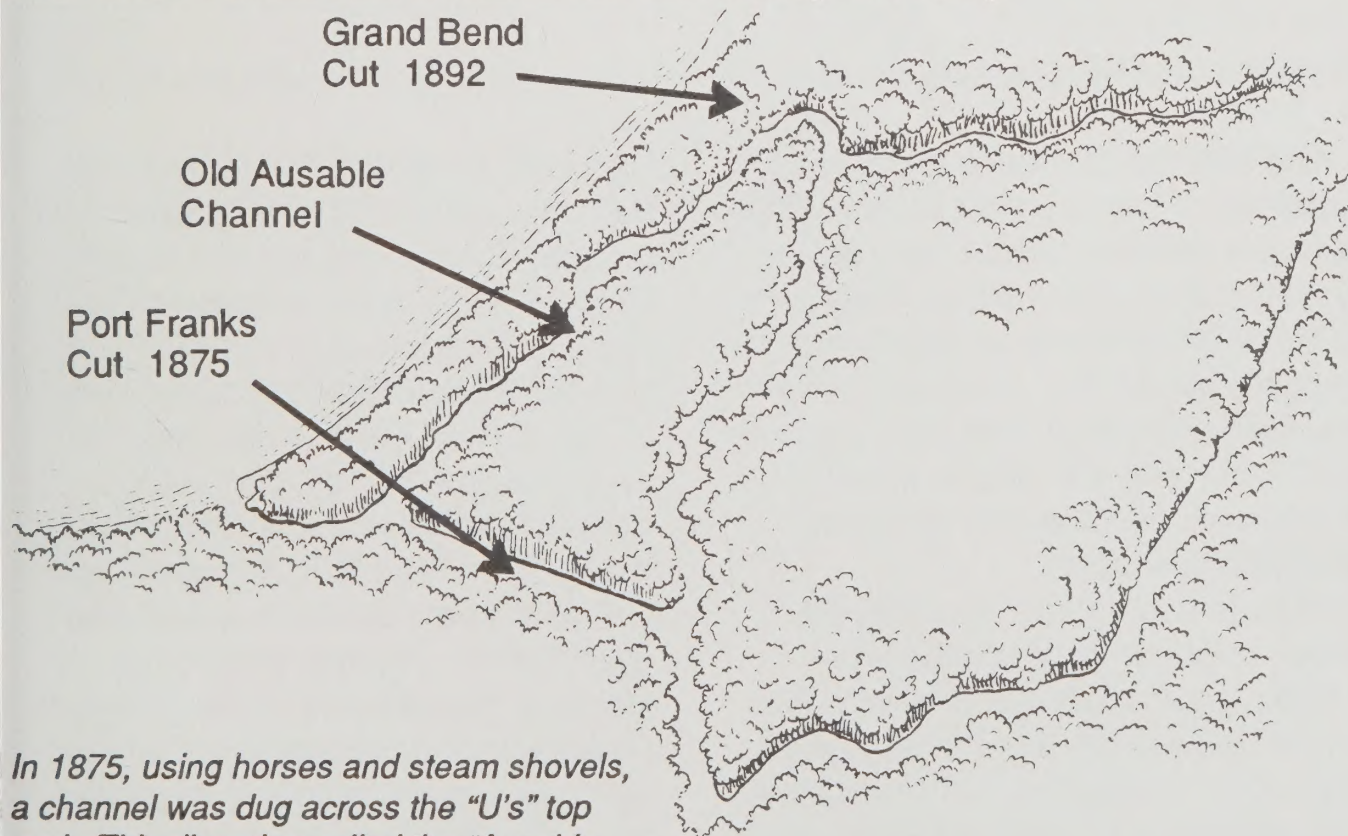
Although beavers build impressive lodges and dams their efforts pale when compared to the engineering marvels of man. The concrete pad you are standing on once supported a hunt camp operated during the late 1800's and early 1900's. It is a small reminder of man's engineering abilities. The Ausable River's route is a far greater testament to man's engineering abilities.

In 1832, humans began altering the flow of the Ausable River. A dam was constructed behind the present day Catholic Church in Grand Bend. Built to power a sawmill, this dam became the center of both a thriving new town and, controversy. Settlers who had

established farms along the Ausable's banks felt the dam caused their land to flood each spring. After losing a legal battle to force the mill owner, Benjamin Brewster to remove his dam settlers took matters into their own hands. In 1860 a mob of angry farmers demolished Brewster's dam and burned his mill to the ground. Despite this drastic action the Ausable continued spilling onto its floodplain each spring.

After discovering that Brewster's mill was not responsible for flooding the upstream farmlands, a grandiose engineering scheme was envisioned. This scheme would change the Ausable forever.

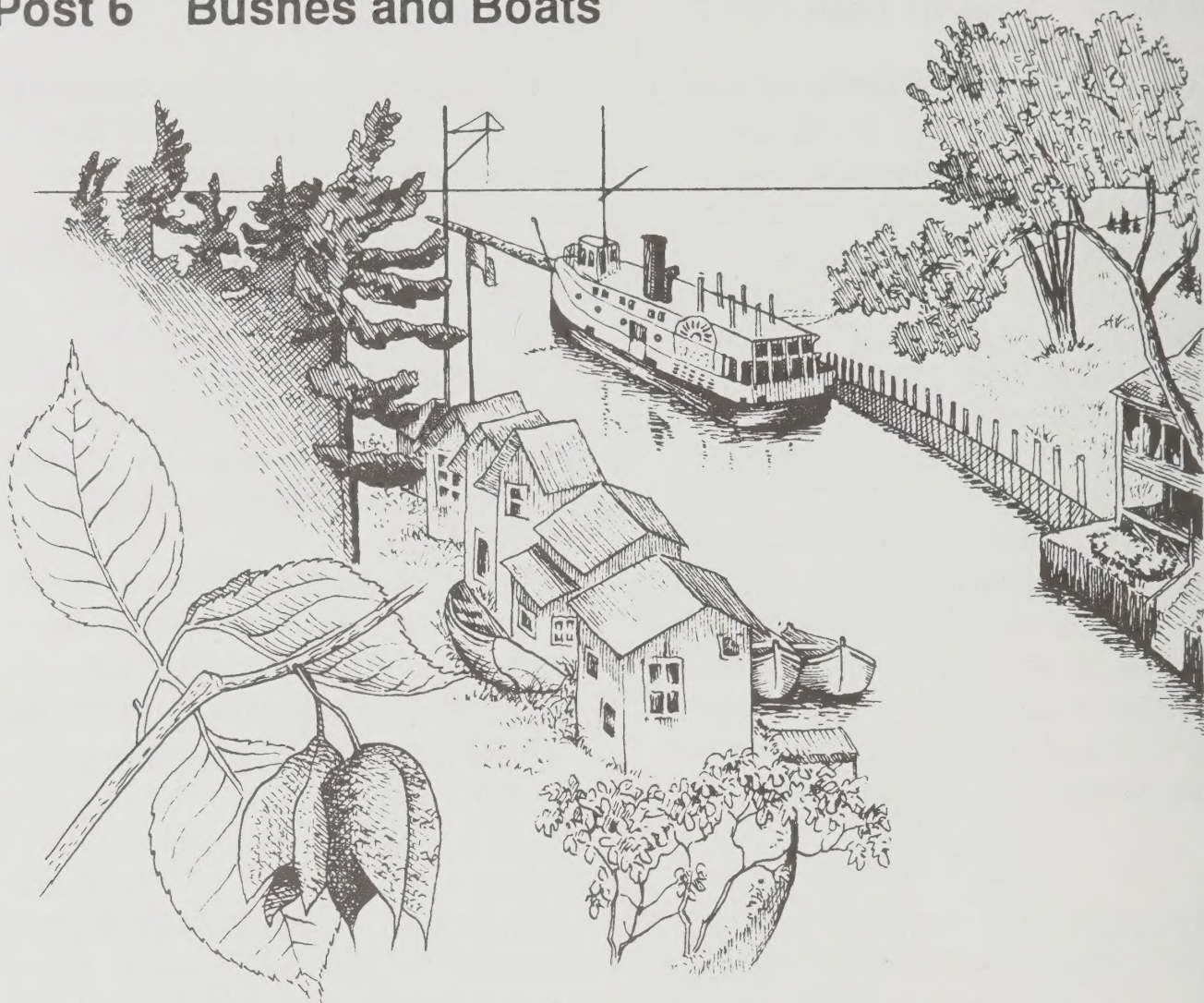
Like a giant upside down "U", the Ausable River originally flowed northwards towards Grand Bend where it turned back on itself to flow south through the Pinery.



In 1875, using horses and steam shovels, a channel was dug across the "U's" top end. This diversion called the "Ausable River Cut", not only spared downstream farms from flooding but also diverted a large portion of the water that historically flowed through the Pinery.

Only a reduced volume, supplied by tributaries downstream of the "cut" continued flowing through the Pinery. Today, even that flow has been stilled.

Post 6 Bushes and Boats



Grand Bend's harbour eliminated the very river bend after which the town was named.

The bushes surrounding you rely on water for dispersing their seeds. Each summer, the Bladdernut bush is adorned with walnut sized seed pods. In September, these air filled pods typically fall into the Ausable's water. Like tiny ships they then sail away. With luck, they will land at a suitable site and establish a new colony of Bladdernut bushes.

Human settlements also rely on water transportation. In the late 1800's grain, lumber and other commodities were often taken to market by water. During this period, increasing numbers of commercial fishermen and pleasure boaters were also plying the waters of Lake Huron. If Grand Bend was to attract these water travellers it needed a harbour.

In 1892, a short channel was dug from the Ausable River's "grand bend" to Lake Huron. This cut, by creating Grand Bend's harbour assured the town's future prosperity. It also created some interesting paradoxes.

Cut off from its water supply, Pinery's Ausable "River" now more closely resembles a long thin pond than a river. The "Old Ausable Channel" as it's now called, is a river that doesn't flow. As well, there's no longer a "grand bend" in the village of Grand Bend! Ironically, the harbour which secured Grand Bend's place on the map, also eliminated the very, sweeping river bend after which the town was named.

Post 7 Fern Sex

Imagine what a walk on Riverside Trail would be like if your body was the size of a speck of dust. The gravel trail surface would look like a maze of house sized boulders while each boardwalk crack would appear deeper than the Grand Canyon. If you should fall into one of those cracks it's very likely you wouldn't touch down on dry land. Instead, you'd alight upon an irregular film of water.

Replenished by morning dew, raindrops and ground moisture this three dimensional "ocean" even has fish!

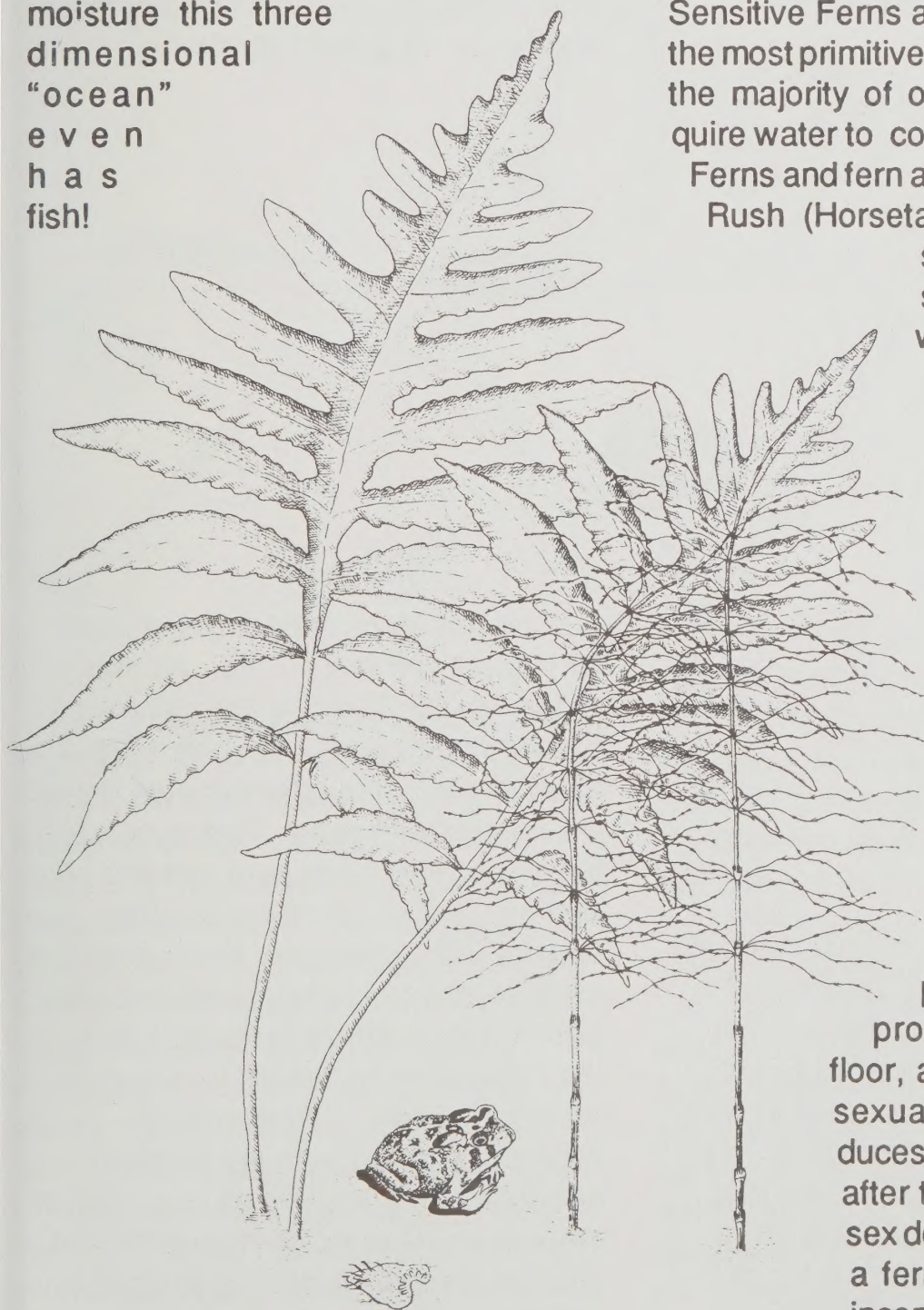
Propelled by whip-like tails these odd creatures zoom purposefully through their filmy sea. Upon finding a heart shaped, pea sized plant they set about battering its surface. Some disappear - they've been swallowed by cone like structures hidden underneath the plant. Have you just witnessed a bizzare, little known carnivorous plant? No. You've witnessed fern sex!

Plants, like all lifeforms evolved from aquatic ancestors. Ferns, such as the Sensitive Ferns at this stop are among the most primitive land plants. Unlike the majority of other plants, ferns require water to complete their life cycle.

Ferns and fern allies, like the Scouring Rush (Horsetail) also seen at this

station have mobile sperm. Since a film of water is required for fern sperm to swim in, ferns and their relatives are almost always found in damp locations.

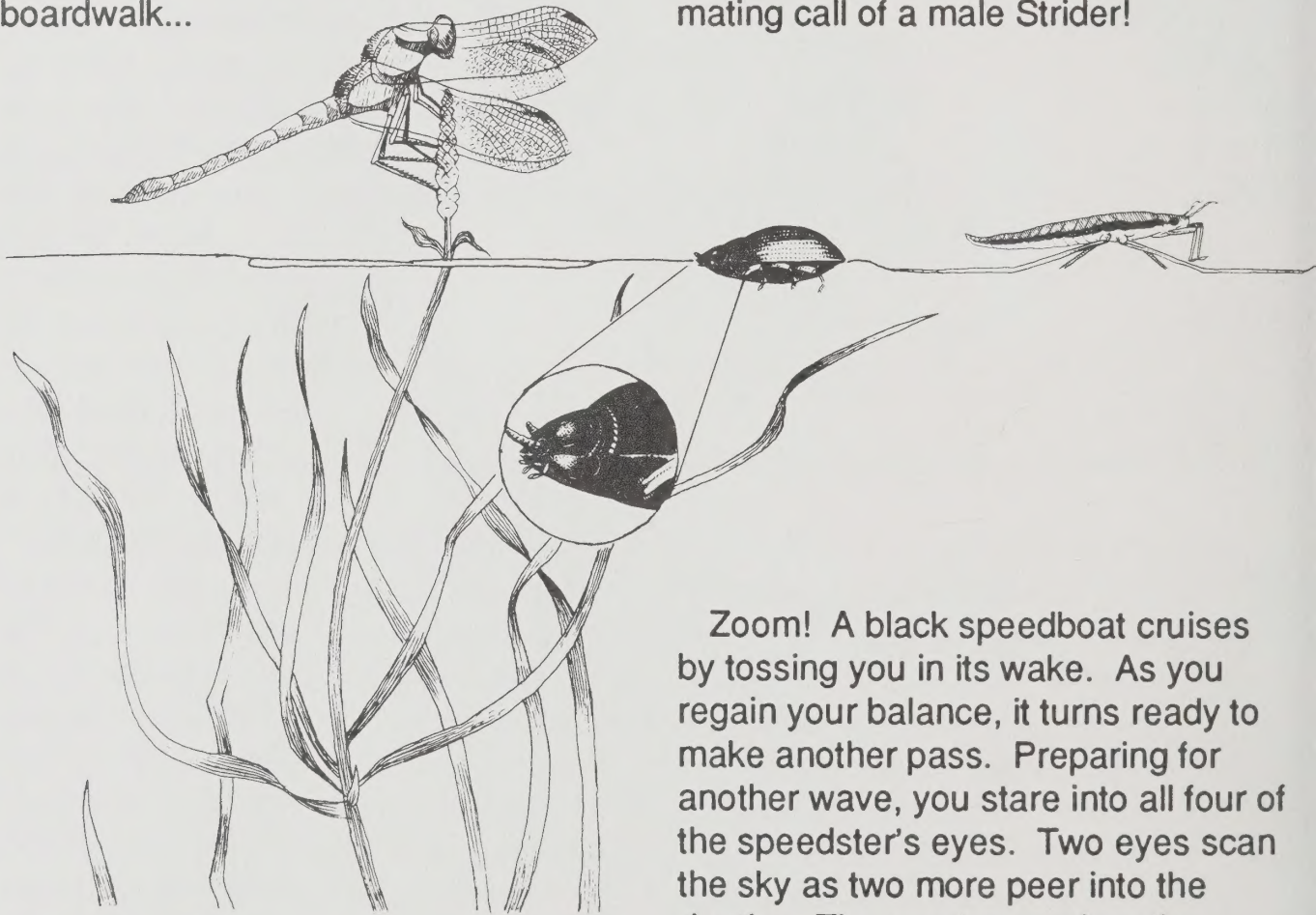
In many places, the A u s a b l e floodplain is covered with a lush green carpet of fernfronds. These striking fronds owe their existence to a pea sized predecessor. Lying prostrate to the forest floor, a fern's heart shaped, sexual stage quietly produces eggs and sperm. Only after the watery act of fern sex does the familiar form of a fern frond grow from its inconspicuous benefactor!



Post 8 Worlds within Worlds

Each member of the Ausable's river edge community lives within its own specific niche. Dragonflies patrol long stretches of shoreline. Water plants root themselves into the river bottom. Whirligig Beetles and Water Striders speed across the water's surface. The river edge community could be described as being several "worlds within worlds". The best way to explore these worlds is to again imagine your body being the size of a speck of dust. Now, step off the boardwalk...

The ripples created when you landed attracted the attention of several ominous looking creatures. A Water Strider skates by. Supported by water repelling hairs, the Strider detects prey by seeking the ripples of struggling insects that have fallen in. You too can feel vibrations travelling across the surface. A distant, rhythmic tapping has caught the Strider's attention. "It", or should we say "she", races away towards those vibrations. The vibrations you both feel are the mating call of a male Strider!

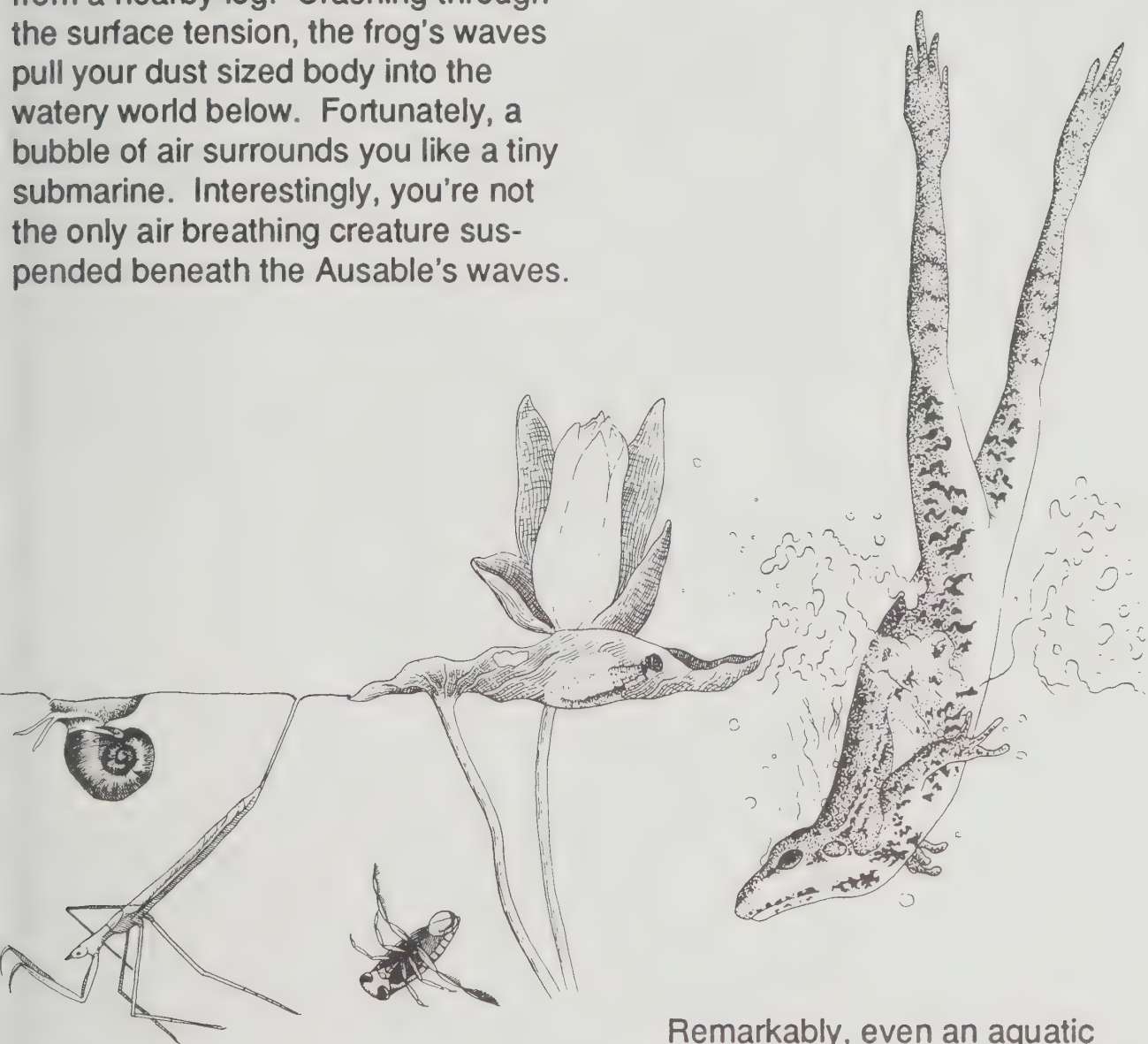


You've just landed on what, from the boardwalk, had looked like tranquil water. Instead of splashing into the cool depths you're struggling to stay upright on what appears to be a giant trampoline! Water molecules are so strongly attracted to each other that those near the surface form a drum-like film. You're standing on top of that film - and you're not alone!

Zoom! A black speedboat cruises by tossing you in its wake. As you regain your balance, it turns ready to make another pass. Preparing for another wave, you stare into all four of the speedster's eyes. Two eyes scan the sky as two more peer into the depths. The creature probes the surface with antennae. Much like a bat listening to sound waves echoed from its prey, Whirligig Beetles use their antennae to "listen" for the echo from their wake. Fortunately, another ripple attracts the beetle's attention and it speeds off in search of other prey. Carried by a gust of wind, you too are now speeding along the water's surface.

Post 9 Life in a Bubble

Splash! A Green Frog has just leapt from a nearby log. Crashing through the surface tension, the frog's waves pull your dust sized body into the watery world below. Fortunately, a bubble of air surrounds you like a tiny submarine. Interestingly, you're not the only air breathing creature suspended beneath the Ausable's waves.



A host of air breathers have devised ingenious ways of surviving under the water's surface. Some, like the Water Scorpion breath through snorkels. Others rise to the surface and take a deep breath before they sink again into the depths. Snails hanging from the surface film are in fact filling their lungs with air before they drop beneath the surface to feed on water plants. Rowing along with its back facing downwards, the Back-swimmer is equipped with a special "aqualung". Several rows of hair hold a glistening air bubble tightly to the Back-swimmer's belly.

Remarkably, even an aquatic caterpillar calls the Ausable River home. If you should spot a water-lily leaf peppered with nickel sized holes, chances are you've seen the work of the China-mark Moth caterpillar. By fastening chunks of water-lily leaf to the plant's underside, this aquatic caterpillar creates a silk and leaf air chamber. Safe from birds and other predators, the caterpillar reaches out from this chamber only when hungry. Water repellent hairs on the caterpillar's neck prevent the air chamber from flooding as the caterpillar feeds. Snug and dry in its bubble of air, the China-moth caterpillar even builds an underwater cocoon!

Post 10 Pinery's Crystal Ball

Peering into the Old Ausable Channel you are looking into the past. The clear water reveals what rivers in southern Ontario once looked like.

Agricultural runoff and industrial pollution have now muddied many of our rivers. Spawning beds are covered with a choking layer of silt. High water temperatures and low oxygen levels allow only the hardiest creatures to survive. Fortunately, the Old Ausable Channel's clear water allows us to see the way things were.

Cut off from its original sources, the Old Ausable Channel is now fed by

groundwater. Emerging from Pinery's dunes, this water supports a thriving fish community. Many of these fish have become rare or disappeared elsewhere in Ontario.

Most of Pinery's rare fish require clear, well-vegetated bodies of water. One species, the Pugnose Shiner, may no longer be found elsewhere in Canada. Others, like the Lake Chubsucker and Longear Sunfish are declining as their clear water habitat becomes rare. Outside of Pinery the Ausable is too murky to support these sensitive fish. Only the Old Ausable Channel's water remains clear enough to allow us to peer into history's "kettle of fish".



Post 11 What's Black and White and Red and Calls all Over?

A newspaper? No. An embarrassed Zebra? No. Take a moment to look and listen - you may hear or see the answer. "Chrrrr!" Our subject calls as it swoops in to land on a dead tree. What's black and white and red and calls all over? That's right ... a woodpecker!

In 1958 a dam was built at the store bridge to raise water levels in the upper reaches of the Old Ausable Channel. Besides providing park

visitors with improved fishing and canoeing, it also killed many stream-side trees. Although sometimes considered unsightly, these trees are feeding and nesting habitat for several types of woodpeckers. Can you see any signs of their activity?

Most of the woodpecker holes you see are built by Red-bellied Woodpeckers. These "southerners" nesting at Pinery are at the northern fringe of their range. Although uncommon in



Ontario, Red-bellied woodpeckers are easily recognized by their zebra striped back, buff breast, reddish cap and neck. A loud “chrring” call often announces their presence.

Another showy and uncommon woodpecker that is occasionally spotted from this station is the Red-headed Woodpecker. Sporting a red head, black back and white rump, the Red-headed Woodpecker is impossible to mistake. The clearing of hedgerows and removal of dead trees

from woodlots in agricultural areas has caused this species to become scarce throughout its range. Red-headed Woodpeckers are common only in places like the Ausable floodplain where an abundance of dead and dying trees are still found.

So, what’s black and white and red and calls all over? Pinery’s woodpeckers of course! Keep your eyes and ears open for the Ausable floodplain is a good place to see some of Ontario’s rarest woodpeckers.

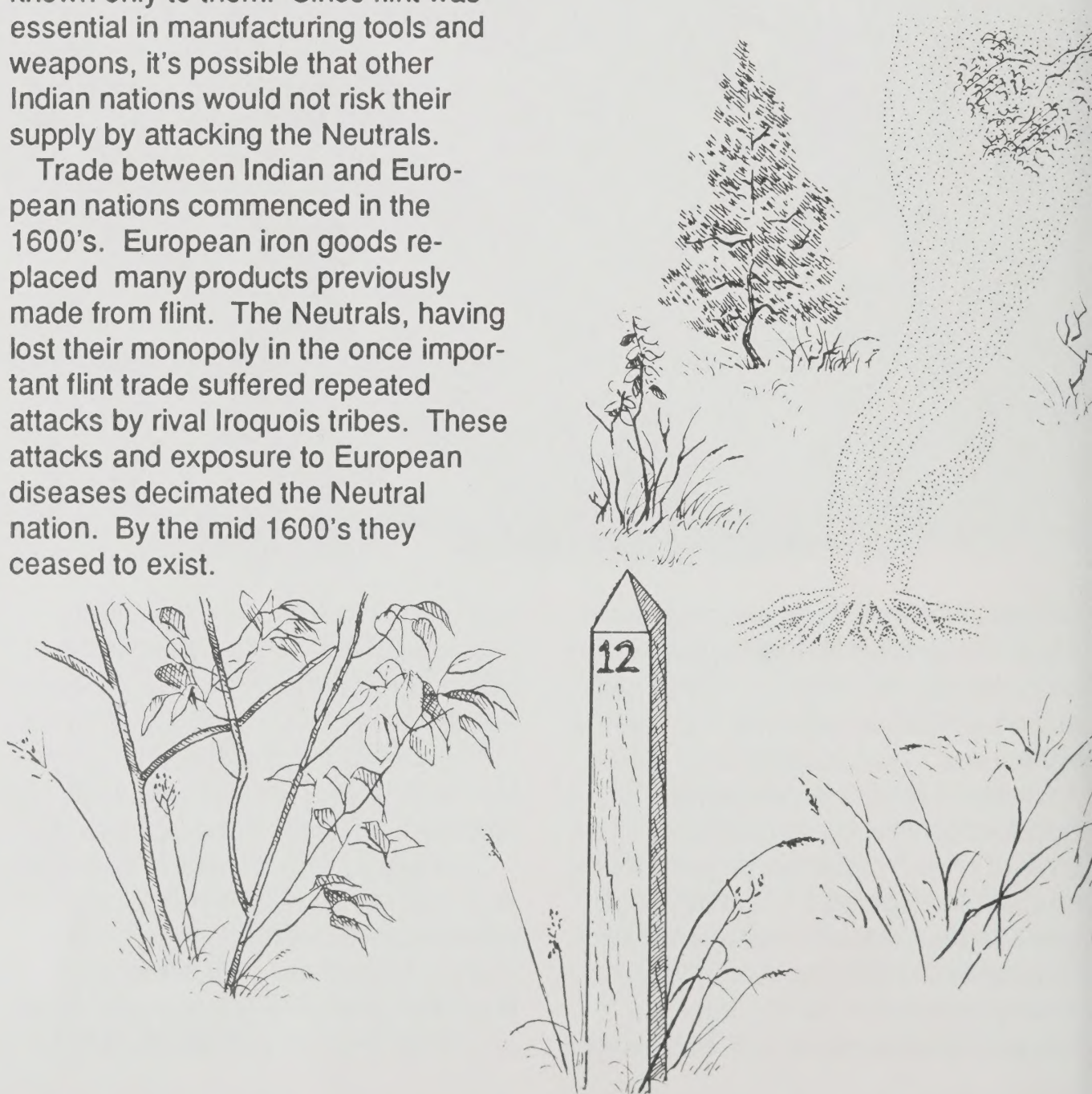
Post 12 Ghost Camp

The Ausable valley was inhabited long before Benjamin Brewster began cutting oak and pine for his ill-fated sawmill. For over two thousand years people have camped along the Ausable's banks. This post marks one of their campsites. Do you feel their presence?

The Ausable's original human inhabitants, the "Attawandaron" Indians first camped at Pinery around 500 B.C. European explorers called these people the "Neutrals". It was thought the "Neutrals" avoided war by trading flint from secret flint beds known only to them. Since flint was essential in manufacturing tools and weapons, it's possible that other Indian nations would not risk their supply by attacking the Neutrals.

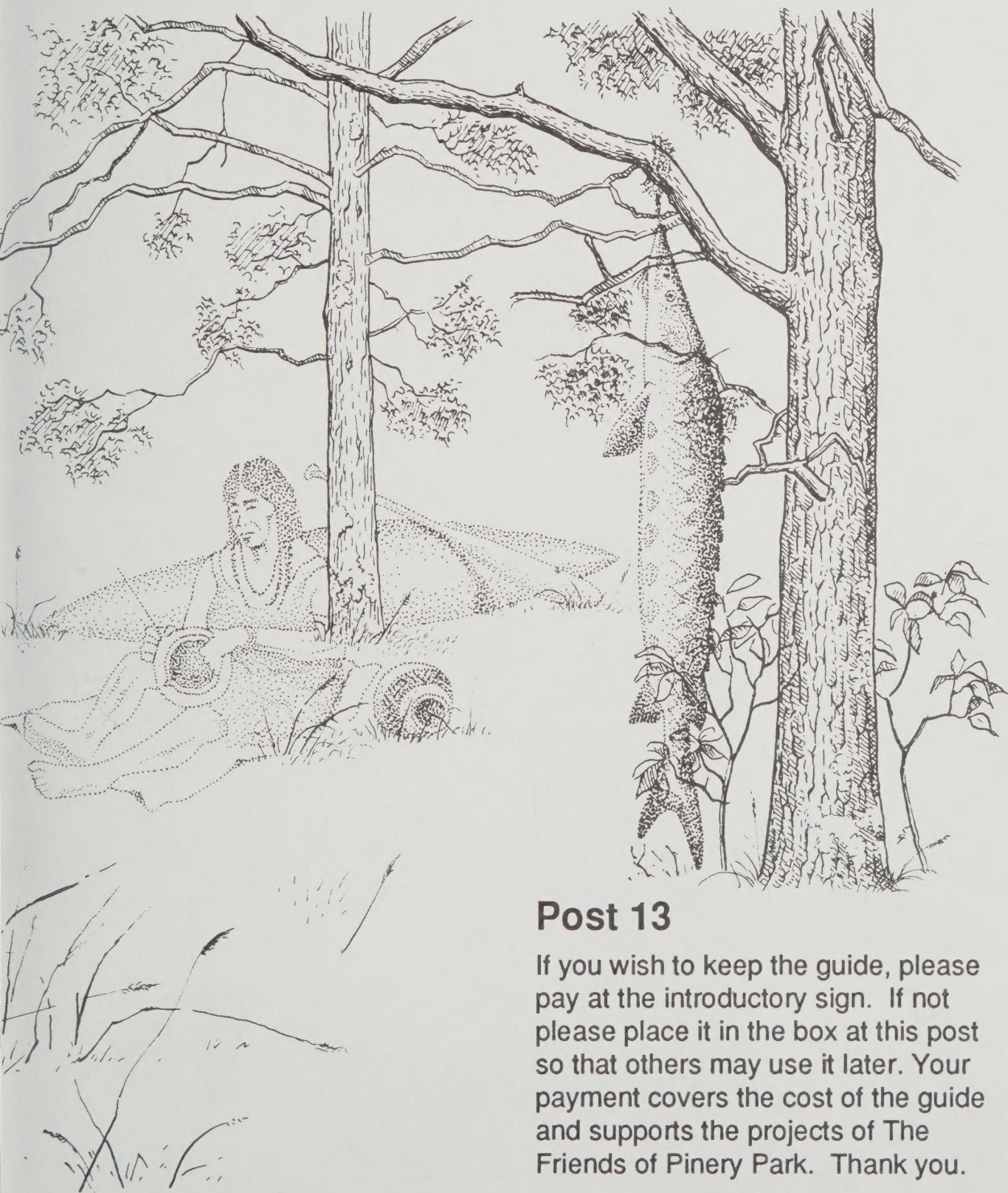
Trade between Indian and European nations commenced in the 1600's. European iron goods replaced many products previously made from flint. The Neutrals, having lost their monopoly in the once important flint trade suffered repeated attacks by rival Iroquois tribes. These attacks and exposure to European diseases decimated the Neutral nation. By the mid 1600's they ceased to exist.

Archeologists explored this "ghost camp" in 1972 and 1976. These and other studies reveal that the Neutral Indians while camped in Pinery, relied heavily on the Ausable for survival. Their garbage dumps or "middens" contain the bones of many animals found in or along the river. Beaver, muskrat and racoon bones were found alongside discarded net weights, pottery shards and fish bones. Even Canada's largest freshwater fish, the man-sized Lake Sturgeon was once caught in the Ausable.



For over two thousand years the Attawandaron were an integral part of the Ausable's ecosystem. Their harmonious relationship with the river and its creatures ended with a sudden finality when Europeans arrived. Now, the Attawandaron legacy haunts places like this ancient campsite. Their legacy may also exist in you.

The Neutrals stepped lightly, leaving few signs of their coming or going. Now, many park visitors follow in their footsteps. As you walk the remainder of the Riverside Trail please take a moment and contemplate how you can help preserve wild places like Pinery's Old Ausable Channel.



Post 13

If you wish to keep the guide, please pay at the introductory sign. If not please place it in the box at this post so that others may use it later. Your payment covers the cost of the guide and supports the projects of The Friends of Pinery Park. Thank you.



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OTHER

PINERY TRAILS This is just one of nine trails maintained in Pinery Provincial Park. Each trail has been developed to introduce you to some aspect of Pinery's natural or cultural history and has either interpretive sign posts or a guide similar to this one. The other eight trails are listed below.

CAROLINIAN TRAIL is a 1.8 km trail that travels along a dune ridge allowing you to look over the Ausable floodplain. The trail guide describes the ecology of the Carolinian Forest that is found along this trail.

BITTERSWEET TRAIL is 1.5 km long and passes through a mature oak-pine forest to the banks of the Old Ausable River Channel. The guide for this trail offers insight into the ecology of the Oak/Pine Forest.

HICKORY TRAIL is 1 km and passes through stands of shagbark hickory and red oak along the banks of the Old Ausable River Channel.

WILDERNESS TRAIL is a 3 km trail that will take you through some of the more remote forests in the park and then across the dunes to a viewing platform overlooking Lake Huron.

LOOKOUT TRAIL is a 1 km trail that travels up one of the largest dunes in the park to a spectacular view of the Thedford Bog.

CEDAR TRAIL is 2.3 km long wheelchair accessible trail that passes through an Pinery's rare and expansive oak savanna community.

PINE TRAIL is .8 km in length and will lead you through stands of red pine and under towering oaks.

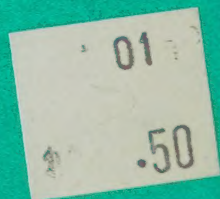
NIPISSING TRAIL is 2 km long with a substantial climb to the top of the highest dune ridge in the park. Both the lake and the Thedford Bog can be seen from the lookout on this trail.

All trails are self guided. Interpretive brochures for the Bittersweet, Riverside and Carolinian Trails are available at the trail entrance or the Visitor Centre. All other trails have interpretive sign-posts to help you discover Pinery's natural history. The riding of bicycles on any Pinery Trail is prohibited by law at all times.

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